

UNITED STATES PATENT AND TRADEMARK OFFICE

In re Application of: Joachim Haedicke et al.
Application Number: 10/529,002
Filing Date: December 15, 2005
Group Art Unit: 3753
Examiner: Andrew J. Rost
Title: GAS TAP COMPRISING AN ELECTROMAGNETIC
SAFETY VALVE AND MAGNETIC INSERT FOR AN
ELECTROMAGNETIC SAFETY VALVE

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Commissioner for Patents
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APPEAL BRIEF

Pursuant to 37 CFR 1.192, Appellants hereby file an appeal brief in the above-identified application. This Appeal Brief is accompanied by the requisite fee set forth in 37 CFR 1.17(f).

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(1) REAL PARTY IN INTEREST

The real party in interest is BSH Bosch und Siemens Hausgeräte GmbH.

(2) RELATED APPEALS AND INTERFERENCES

There are no appeals or interferences that will directly affect or be directly affected by or have a bearing on the Board's decision in the pending appeal.

(3) STATUS OF CLAIMS

Claims 14-18, 20, 22, 23 and 25-30 are present in this application. Claims 1-13, 19, 21 and 24 have been canceled. All of pending claims 14-18, 20, 22, 23 and 25-30 have been rejected and are on appeal.

(4) STATUS OF AMENDMENTS

No Amendments have been filed since the date of the final Office Action dated November 12, 2010.

(5) SUMMARY OF CLAIMED SUBJECT MATTER AND SPECIFIC SUPPORT FOR INDEPENDENT CLAIMS

Independent claim 14 defines a gas tap that includes a gas path and further includes an electromagnetic safety valve 8 for closing the gas path. The safety valve includes an armature housing 19 with a mobile magnetic anchor 21 in the housing and a valve seat 35. The mobile magnetic anchor includes a valve closing element 29, 31 which presses on the valve seat to close the gas path. At least two magnetic anchor guide sections 25, 39 are positioned and axially spaced apart in the armature housing to guide the magnetic anchor, where the two magnetic anchor guide sections are made from different materials, a first one of the two magnetic anchor guide sections being made from metal and a second one of the two magnetic

anchor guide sections being made from a plastic material. Each of the magnetic anchor guide sections is a separate and independent component. An electromagnetic coil 45 activates the mobile magnetic anchor and the valve closing element to open the gas path when voltage is applied to the electromagnetic coil. Also, the electromagnetic coil is arranged as a separate component outside of the armature housing on a magnetic insert. See p. 4, line 19 - p. 7, line 10 and Figs.

Independent claims 26 and 29 recite a magnetic insert with the foregoing features as applicable and additionally recite that both/all of the magnetic anchor guide sections directly guide the magnetic anchor. Independent claim 30 additionally recites that the electromagnetic coil is mounted on an outer circumference of the first magnetic anchor guide section. See below.

26. A magnetic insert for an electromagnetic safety valve for inserting into a gas tap including a gas path, the magnetic insert comprising:

an armature housing 19 and having a mobile magnetic anchor 21 in said housing;
a valve seat 35;
said mobile magnetic anchor including a valve closing element 29, 31 which presses on said valve seat to close the gas path;

at least two magnetic anchor guide sections 25, 39 positioned and axially spaced apart in said armature housing to guide said magnetic anchor, said at least two magnetic anchor guide sections being made from different materials, a first one of said two magnetic anchor guide sections being made from metal and a second one of said two magnetic anchor guide

sections being made from a plastic material, wherein each of said at least two magnetic anchor guide sections is a separate and independent component, and wherein all of the at least two magnetic anchor guide sections directly guide the magnetic anchor;

an electromagnetic coil 45 for activating said mobile magnetic anchor and valve closing element to open said gas path when voltage is applied to said electromagnetic coil; and

said electromagnetic coil arranged as a separate component outside of said armature housing on the magnetic insert. See p. 4, line 19 - p. 7, line 10 and Figs.

29. A gas tap including a gas path, comprising:
an electromagnetic safety valve 8 for closing the gas path;
said safety valve including an armature housing 19 and having a mobile magnetic anchor 21 in said housing;

a valve seat 35;
said mobile magnetic anchor including a valve closing element 29, 31 which presses on said valve seat to close said gas path;

at least two magnetic anchor guide sections 25, 39 positioned and axially spaced apart in said armature housing to guide said magnetic anchor, said at least two magnetic anchor guide sections being made from different materials, a first one of said two magnetic anchor guide sections being made from metal and a second one of said two magnetic anchor guide sections being made from a plastic material, wherein each of said at least two magnetic anchor guide sections is a separate and independent component , and wherein both of the magnetic

anchor guide sections directly guide the magnetic anchor;
an electromagnetic coil 45 for activating said mobile magnetic anchor and valve
closing element to open said gas path when voltage is applied to said electromagnetic coil;
and

said electromagnetic coil arranged as a separate component outside of said armature
housing on a magnetic insert. See p. 4, line 19 - p. 7, line 10 and Figs.

30. A gas tap including a gas path, comprising:
an electromagnetic safety valve 8 for closing the gas path;
said safety valve including an armature housing 19 and having a mobile magnetic
anchor 21 in said housing;
a valve seat 35;
said mobile magnetic anchor including a valve closing element 29, 31 which presses
on said valve seat to close said gas path;
at least two magnetic anchor guide sections 25, 39 positioned and axially spaced apart
in said armature housing to guide said magnetic anchor, said at least two magnetic anchor
guide sections being made from different materials, a first one of said two magnetic anchor
guide sections being made from metal and a second one of said two magnetic anchor guide
sections being made from a plastic material, wherein each of said at least two magnetic anchor
guide sections is a separate and independent component, and wherein all of the at least two
magnetic anchor guide sections directly guide the magnetic anchor; and
an electromagnetic coil 45 for activating said mobile magnetic anchor and valve

closing element to open said gas path when voltage is applied to said electromagnetic coil, wherein said electromagnetic coil is mounted as a separate component on an outer circumference of the first magnetic anchor guide section. See p. 4, line 19 - p. 7, line 10 and Figs.

The electromagnetic coil may be arranged gastight separately from the gas path. The electromagnetic coil is preferably attached on the outside of the armature housing of a magnetic insert to easily detach therefrom. The electromagnetic coil may be arranged on the outside of the gas tap. See Figs.

The magnetic anchor of the magnetic insert may protrude at least partially outside of the gas tap. In one arrangement, one of the two magnetic anchor guide sections is positioned inside of the gas tap and the other of the two magnetic anchor guide sections is positioned outside of the gas tap. See Figs.

A counter-anchor 51 may be arranged in the armature housing to at least one of strengthen the magnetic force of the magnetic insert and limit the armature stroke path. See p. 7, lines 5-32. The armature housing may be formed in two separate parts, with the first armature housing section set in the gas tap and a second armature housing section projecting from the gas tap. See Figs.

The gas tap may additionally include a tap axle 3, where the gas flow path includes a gas inlet upstream of the valve seat relative to the direction of flow of gas. See p. 4, lines 19-21. The tap axle is disposable between a closing disposition in which the tap axle prevents a flow of gas between the gas inlet and the valve seat and an open disposition in which the tap

axle permits a flow of gas between the gas inlet and the valve seat. The tap axle may be pivotable between its closing disposition and its open disposition. See p. 4, line 19 – p. 5, line 5.

(6) GROUNDS OF REJECTION TO BE REVIEWED ON APPEAL

1. Whether claims 14, 15, 17, 18, 20, 23, 26 and 29 are unpatentable under 35 U.S.C. §102(b) over Laurent (USP 5,145,148).

2. Whether claims 14-18, 20, 23, 26 and 30 are unpatentable under 35 U.S.C. §102(b) over Hofmann et al. (WO 99/37517, with USP 6,322,049 being used as the translation).

3. Whether claims 22 and 25 are unpatentable under 35 U.S.C. §103(a) over Laurent in view of Grant et al. (USP 5,188,017).

4. Whether claims 14, 15, 17, 18, 20, 23 and 26-29 are unpatentable under 35 U.S.C. §103(a) over Kaselow (USP 4,830,602) in view of Laurent.

(7) ARGUMENT

1. *Claims 14, 15, 17, 18, 20, 23, 26 and 29 are not unpatentable under 35 USC §102(b) as being anticipated by Laurent (U.S. Patent No. 5,145,148).*

With regard to the Laurent patent, as discussed previously, merely guiding the pin 38 in Laurent does not amount to guiding the armature 20, particularly since Laurent is silent with regard to whether the pin 38 is even connected to the armature 20. The Office Action refers to core 54 being received in a “depression of the element 20” in Fig. 1. There is no connection, however, and further “guiding” is not needed in view of the armature guide

structure. Moreover, no part of the structure that serves to guide the core 54 and sleeve 56 also serves at any time to actually guide the armature 20. As shown in Fig. 1, the armature 20 is not sized to fit within the bore in the body 12 in which the core 54 and sleeve 56 are disposed.

Laurent also lacks the claimed two anchor guide sections of different materials. Laurent describes that the sleeve 56 has an outside diameter that provides a close fit with the circular cylindrical wall of through-bore 27 “for allowing that wall to guide the axial reciprocation of the pin” As such, if any part of the Laurent structure amounts to an anchor guide, at best it would be the circular cylindrical wall of the through-bore 27 in the body 12. The cross-hatching in Fig. 1 in Laurent evidences that the body 12, and thus the wall of the through-bore 27, is metal. Assuming that the “outer circumference of the element 20” purportedly amounts to another guide section, this section in Laurent is also shown as metal.

With regard to independent claims 26 and 29, these claims define similar structure, and Appellants submit that these claims are distinguishable from Laurent for similar reasons. In addition, claims 26 and 29 recite that all/both of the at least two magnetic anchor guide sections directly guide the magnetic anchor (see FIG. 2). As noted, the components referenced in the Office Action at best guide the pin 38 and do not directly guide the armature 20. That is, the purported “guide” via the circular cylindrical wall of the through-bore 27 serves to guide the core 54 and sleeve 56. As would be appreciated by those of ordinary skill in the art, even if this structure somehow amounts to a guide for the armature 20, it is error to suggest that such guiding is “direct.” In this scenario, the purported guiding of the armature

20 is effected by guiding the core 54 and sleeve 56, which the Examiner contends are connected to the armature 20. Guiding the armature 20 by guiding structure purportedly connected to the armature is the very definition of “indirect” guiding, which directly contrasts the claimed invention.

With regard to the dependent claims, Appellants submit that these claims are allowable at least by virtue of their dependency on an allowable independent claim and because they recite additional patentable subject matter. For example, claim 23 recites that the armature housing is formed in two separate parts, with a first armature housing section set in the gas tap and a second armature housing section projecting from the gas tap. In this context, the Examiner contends that Laurent discloses this subject matter referring to “a section that is received within the body (12) and a section that is projecting from the body (element that supports spring 36 and defines a gap 46).” This is a mischaracterization of the Laurent structure. The armature housing according to the claimed invention is structure that receives the mobile magnetic anchor (see claim 14). The “section that is received within the body (12)” in Laurent does not in any manner receive a mobile magnetic anchor.

Reversal of the rejection is requested.

2. *Claims 14-18, 20, 23, 26 and 30 are not unpatentable under 35 USC §102(b) as being anticipated by Hofmann et al. (WO99/37517, USP 6,322,049).*

With regard to the Hofmann publication, although element 13 in Hofmann is referred to as a “guide body,” the guide body 13 does not serve a guiding function for the armature 14. The guide body 13 rather serves to guide fluid under pressure through conduits 39. Indeed, as

seen in Fig. 2, the shaft 29 of cylindrical body 30 is spaced from the through bore 38 in the guide body 13. Consequently, it does not appear that the through bore 38 serves a guiding function for the shaft 29 or, in turn, the armature 14.

Moreover, like the Laurent patent, guiding the shaft 29, even assuming the shaft is guided, does not amount to guiding the armature 14. The Examiner refers to the shaft as the “cylindrical shaft 29 of the lower portion of the armature.” The shaft 29, however, in fact does not form part of the armature. Certainly, the armature 14 is not sized to fit within guide body 13 or within any structure that purportedly guides the shaft 29.

Hofmann also lacks the feature defined in claims 26 and 30 wherein each of at least two magnetic anchor guide sections is a separate and independent component, and wherein all/both of the magnetic anchor guide sections directly guide the magnetic anchor. Even assuming the shaft 29 is guided, the structure that purportedly guides the shaft 29 would guide the armature 14 through guiding the shaft 29. This also is the very definition of “indirect” guiding, which directly contrasts the claimed invention.

With regard to the dependent claims, Appellants submit that these claims are allowable at least by virtue of their dependency on an allowable independent claim and because they recite additional patentable subject matter.

Reversal of the rejection is requested.

3. *Claims 22 and 25 are not unpatentable under 35 U.S.C. §103(a) over Laurent in view of Grant et al. (U.S. Patent No. 5,188,017).*

Without conceding this rejection, Appellants submit that the Grant patent does not correct the deficiencies noted with regard to Laurent and independent claim 14. As such, Appellants submit that these dependent claims are allowable at least by virtue of their dependency on an allowable independent claim and because they recite additional patentable subject matter. Reversal of the rejection is requested.

4. *Claims 14, 15, 17, 18, 20, 23 and 26-29 are not unpatentable under 35 U.S.C. §103(a) over Kaselow (U.S. Patent No. 4,830,602) in view of Laurent.*

With regard to the Kaselow patent, Kaselow is silent with regard to the details of its solenoid, as noted by the Examiner. At a minimum, however, it is clear that the coil (of the electromagnet 15) is not “arranged as a separate component outside of said armature housing on the magnetic insert” as claimed. The Laurent patent is discussed above and as noted lacks at least the claimed two anchor guide sections that guide a magnetic anchor, lacks two anchor guide sections of different materials, and with respect to claims 26 and 29, also lacks the claimed direct guiding of the magnetic anchor. Appellants thus submit that the rejection of independent claims 14, 26 and 29 should be withdrawn.

With regard to the dependent claims, Appellants submit that these claims are allowable at least by virtue of their dependency on an allowable independent claim and because they recite additional patentable subject matter.

Reversal of the rejection is requested.

(8) CONCLUSION

In view of the foregoing discussion, Appellants respectfully request reversal of the Examiner's rejections.

Respectfully submitted,

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CLAIMS APPENDIX

1-13. (Canceled)

14. (Rejected) A gas tap including a gas path, comprising:
an electromagnetic safety valve for closing the gas path;
said safety valve including an armature housing and having a mobile magnetic anchor
in said housing;
a valve seat;
said mobile magnetic anchor including a valve closing element which presses on said
valve seat to close said gas path;
at least two magnetic anchor guide sections positioned and axially spaced apart in said
armature housing to guide said magnetic anchor, said at least two magnetic anchor guide
sections being made from different materials, a first one of said two magnetic anchor guide
sections being made from metal and a second one of said two magnetic anchor guide sections
being made from a plastic material, wherein each of said at least two magnetic anchor guide
sections is a separate and independent component;
an electromagnetic coil for activating said mobile magnetic anchor and valve closing
element to open said gas path when voltage is applied to said electromagnetic coil; and
said electromagnetic coil arranged as a separate component outside of said armature
housing on a magnetic insert.

15. (Rejected) The gas tap according to claim 14, including said electromagnetic coil
arranged gastight separately from said gas path.

16. (Rejected) The gas tap according to claim 14, including said electromagnetic coil
is attached on the outside of said armature housing of said magnetic insert to easily detach
therefrom.

17. (Rejected) The gas tap according to claim 14, including said electromagnetic coil
is arranged on the outside of the gas tap.

18. (Rejected) The gas tap according to claim 14, including said magnetic anchor of
said magnetic insert protrudes at least partially outside of the gas tap.

19. (Canceled)

20. (Rejected) The gas tap according to claim 14, wherein one of said two magnetic anchor guide sections is positioned inside of the gas tap and the other of said two magnetic anchor guide sections is positioned outside of the gas tap.

21. (Canceled)

22. (Rejected) The gas tap according to claim 14, including a counter-anchor arranged in said armature housing to at least one of strengthen the magnetic force of said magnetic insert and limit the armature stroke path.

23. (Rejected) The gas tap according to claim 14, including said armature housing formed in two separate parts, with a first armature housing section set in the gas tap and a second armature housing section projecting from the gas tap.

24. (Canceled)

25. (Rejected) The gas tap according to claim 23, including a counter-anchor arranged in said armature housing to strengthen the magnetic force of said magnetic insert, to limit the armature stroke path or to both strengthen the magnetic force of said magnetic insert and limit the armature stroke path and at least one of said electromagnetic coil, one of said armature housing sections and said counter-anchor are provided on said second armature housing section projecting from the gas tap.

26. (Rejected) A magnetic insert for an electromagnetic safety valve for inserting into a gas tap including a gas path, the magnetic insert comprising:

an armature housing and having a mobile magnetic anchor in said housing;

a valve seat;

said mobile magnetic anchor including a valve closing element which presses on said valve seat to close the gas path;

at least two magnetic anchor guide sections positioned and axially spaced apart in said armature housing to guide said magnetic anchor, said at least two magnetic anchor guide sections being made from different materials, a first one of said two magnetic anchor guide sections being made from metal and a second one of said two magnetic anchor guide sections

being made from a plastic material, wherein each of said at least two magnetic anchor guide sections is a separate and independent component, and wherein all of the at least two magnetic anchor guide sections directly guide the magnetic anchor;

an electromagnetic coil for activating said mobile magnetic anchor and valve closing element to open said gas path when voltage is applied to said electromagnetic coil; and

said electromagnetic coil arranged as a separate component outside of said armature housing on the magnetic insert.

27. (Rejected) The gas tap according to claim 14, including a tap axle and the gas flow path includes a gas inlet upstream of the valve seat relative to the direction of flow of gas, the tap axle being disposable between a closing disposition in which the tap axle prevents a flow of gas between the gas inlet and the valve seat and an open disposition in which the tap axle permits a flow of gas between the gas inlet and the valve seat.

28. (Rejected) The gas tap according to claim 27, including the tap axle is pivotable between its closing disposition and its open disposition.

29. (Rejected) A gas tap including a gas path, comprising:
an electromagnetic safety valve for closing the gas path;
said safety valve including an armature housing and having a mobile magnetic anchor in said housing;

a valve seat;
said mobile magnetic anchor including a valve closing element which presses on said valve seat to close said gas path;

at least two magnetic anchor guide sections positioned and axially spaced apart in said armature housing to guide said magnetic anchor, said at least two magnetic anchor guide sections being made from different materials, a first one of said two magnetic anchor guide sections being made from metal and a second one of said two magnetic anchor guide sections being made from a plastic material, wherein each of said at least two magnetic anchor guide sections is a separate and independent component , and wherein both of the magnetic anchor guide sections directly guide the magnetic anchor;

an electromagnetic coil for activating said mobile magnetic anchor and valve closing element to open said gas path when voltage is applied to said electromagnetic coil; and

said electromagnetic coil arranged as a separate component outside of said armature housing on a magnetic insert.

30. (Rejected) A gas tap including a gas path, comprising:

- an electromagnetic safety valve for closing the gas path;
- said safety valve including an armature housing and having a mobile magnetic anchor in said housing;
- a valve seat;
- said mobile magnetic anchor including a valve closing element which presses on said valve seat to close said gas path;
- at least two magnetic anchor guide sections positioned and axially spaced apart in said armature housing to guide said magnetic anchor, said at least two magnetic anchor guide sections being made from different materials, a first one of said two magnetic anchor guide sections being made from metal and a second one of said two magnetic anchor guide sections being made from a plastic material, wherein each of said at least two magnetic anchor guide sections is a separate and independent component, and wherein all of the at least two magnetic anchor guide sections directly guide the magnetic anchor; and
- an electromagnetic coil for activating said mobile magnetic anchor and valve closing element to open said gas path when voltage is applied to said electromagnetic coil, wherein said electromagnetic coil is mounted as a separate component on an outer circumference of the first magnetic anchor guide section.

Attorney Docket No. 2002P00990WOUS

EVIDENCE APPENDIX

None

Attorney Docket No. 2002P00990WOUS

RELATED APPEALS APPENDIX

None